Statewide Planning Meeting
February 26 and 27, 2008

The Modal Branch

1 Vs. 100!

Branch Manager

Lynn Soporowski, P.E.

Air Quality

Jesse Mayes, P.E.

Forecasting and Modeling

Scott Thomson, P.E.
David Hamilton, P.E.
Nathan Wilkinson

Intermodal and Freight

Brent Sweger, P.E.
Jeremy Edgeworth
Erin Hart (Intern)

1. Traffic forecasts typically project traffic characteristics how far into the future?

A. 10 years past the current year

B. 25 years past the current year

C. 20 years past the construction year

D. the year 3000

2. Traffic forecasts **are not** typically used for _____?

A. Deciding pavement thickness

B. Designing intersection turn lanes

C. Determining project funding sources

D. Air quality analysis

3. Transportation conformity ensures _____?

A. The transportation plan will not make air quality worse

B. We build roads that “conform” to traffic needs

C. Design standards are met

D. Bridges meet the roadway on both sides of the span

4. The State Implementation Plan, or SIP, is _____?

A. A statewide transportation plan to implement six year plan projects

B. The statewide maintenance plan

C. The plan that shows how the state will meet air quality standards

D. A tiny drink of water

5. How many public riverports does Kentucky have (active & developing)?

A. 4

B. 7

C. 11

D. Wait...Kentucky has public riverports?

6. How many counties in Kentucky are within 100 miles of an active public riverport?

A. 9

B. 50

C. 112

D. I’m still confused…Kentucky has public riverports?

7. Which of the following **is not** a Kentucky ferry?

A. Cave-in-Rock

B. Turkey Neck Bend

C. Augusta

D. Tinkerbell

8. What is the safest type of median?

A. TWLTL (continuous center turning lane)

B. Non-traversable (depressed grass or curbed)

C. No median at all

D. An income of over $100,000

9. Increasing the number of signals from 2 per mile to 4 per mile has what effect on travel time?

A. Increases by 16%

B. Decreases by 8%

C. Increases by 50%

D. Is dependent upon your abilities to acquire a “special” remote control

10. Which **is not** true about roundabouts?

A. They are safer than most intersection controls

B. They move cars with less delay than most intersection controls

C. Vehicles entering yield to vehicles circulating

D. They tend to be squarish

11. Traffic forecasts generally estimate a roadway's DHV in the future. A DHV can best be described as?

A. 30th highest hour volume of the year

B. A typical peak hour

C. Percentage of design hour to ADT

D. A shot in the dark

DHV Factor Example

High hourly count of 843 on a Tuesday in August for FC 2 (Rural Principal Arterial) road

Go to lookup table to obtain DHV factor of 1.21

Current year DHV estimate is calculated:

843 * 1.21 = 1020

FC#	FC Description	DHV	K-Factor
1	Rural Interstate	3,784	9.8%
2	Rural Principal Arterial	1,040	10.7%
6	Rural Minor Arterial	483	11.7%
7	Rural Major collector	248	10.9%
8	Rural Minor Collector	135	11.4%
9	Rural Local	-	-
11	Urban Interstate	9,411	10.2%
12	Urban Other Freeway	5,712	10.9%
14	Urban Principal Arterial	2,044	9.3%
16	Urban Minor Arterial	1,144	10.1%
17	Urban Collector	1,222	11.2%
19	Urban Local	-	-

- Based on ATR data from 2006

12. Forecasts typically use ATRs for?

A. ESAL forecasts

B. Lookup Tables

C. Trip length distributions

D. All of these

13. Based on trends, if a road classified Rural Principal Arterial (FC 2) has a traffic volume of 8,900 in 2007, which is the expected 2032 volume?

A. 13,000

B. 17,000

C. 21,000

D. 25,000

FC#	FC Description	25-year Multiplier	Growth Rate
1	Rural Interstate	1.88	2.57%
2	Rural Principal Arterial	1.91	2.62%
6	Rural Minor Arterial	1.83	2.44%
7	Rural Major collector	1.57	1.83%
8	Rural Minor Collector	1.61	1.91%
9	Rural Local	1.78	2.33%
11	Urban Interstate	1.99	2.79%
12	Urban Other Freeway	2.26	3.31%
14	Urban Principal Arterial	1.58	1.84%
16	Urban Minor Arterial	1.81	2.40%
17	Urban Collector	1.91	2.62%
19	Urban Local	1.73	2.21%

- Based on all Historical counts through 11-1-07

FC#	FC Description	2007 Trend	2032 Trend
1	Rural Interstate	35,200	66,500
2	Rural Principal Arterial	8,900	17,000
6	Rural Minor Arterial	4,800	8,800
7	Rural Major collector	2,300	3,700
8	Rural Minor Collector	750	1,200
9	Rural Local	450	800
11	Urban Interstate	84,400	168,000
12	Urban Other Freeway	33,500	75,500
14	Urban Principal Arterial	20,800	33,000
16	Urban Minor Arterial	10,600	19,000
17	Urban Collector	4,800	9,000
19	Urban Local	2,800	4,900

- Based on all Historical counts through 11-1-07

14. Compared to traffic as a whole trucks have been growing at what rate?

A. Slightly less

B. About the Same

C. Slightly More

D. 2-3 times as fast

15. If 500,000 tons of coal is shipped in a year on a road, this translates to an average of about _____ coal trucks per weekday.

A. 10

B. 50

C. 150

D. 200

16. The impact of one coal truck on a road's pavement is equivalent to what number of passenger cars?

A. 100

B. 500

C. 1000

D. 2500

17. Which of the following is a tool that tests future transportation projects?

A. Travel demand model

B. Simulation model

C. Both A and B

D. Only a traffic forecasting geek would know that

Locations Where we have an Updated TDM

MPO Areas
Nelson County
Rowan County
Woodford County
Christian County
Madison County
Simpson County
Scott County
Statewide Model

18. Turning movement DHV traffic forecasts should typically be used for _____.

A. Storage (layout/geometry)

B. Signal timing

C. Both A and B

D. A desk leveling device

19. What is the minimum amount of left turns needed to require a turn lane in the DHV according to HCM?

A. 50

B. 100

C. 150

D. 200

20. What are the minimal number of ESALs needed to impact a bridge's design?

A. 500,000

B. 1,000,000

C. 10,000,000

D. ESALs are typically not used for bridge design

21. Special counts typically add _____ to the time to do the forecast?

A. 2 weeks

B. 4 weeks

C. 8 weeks

D. Ted Noe is your Master

22. Kentucky has approximately 2700 miles of active mainline railways. Which of the following railroads **is not** currently operating in KY?

A. CSX

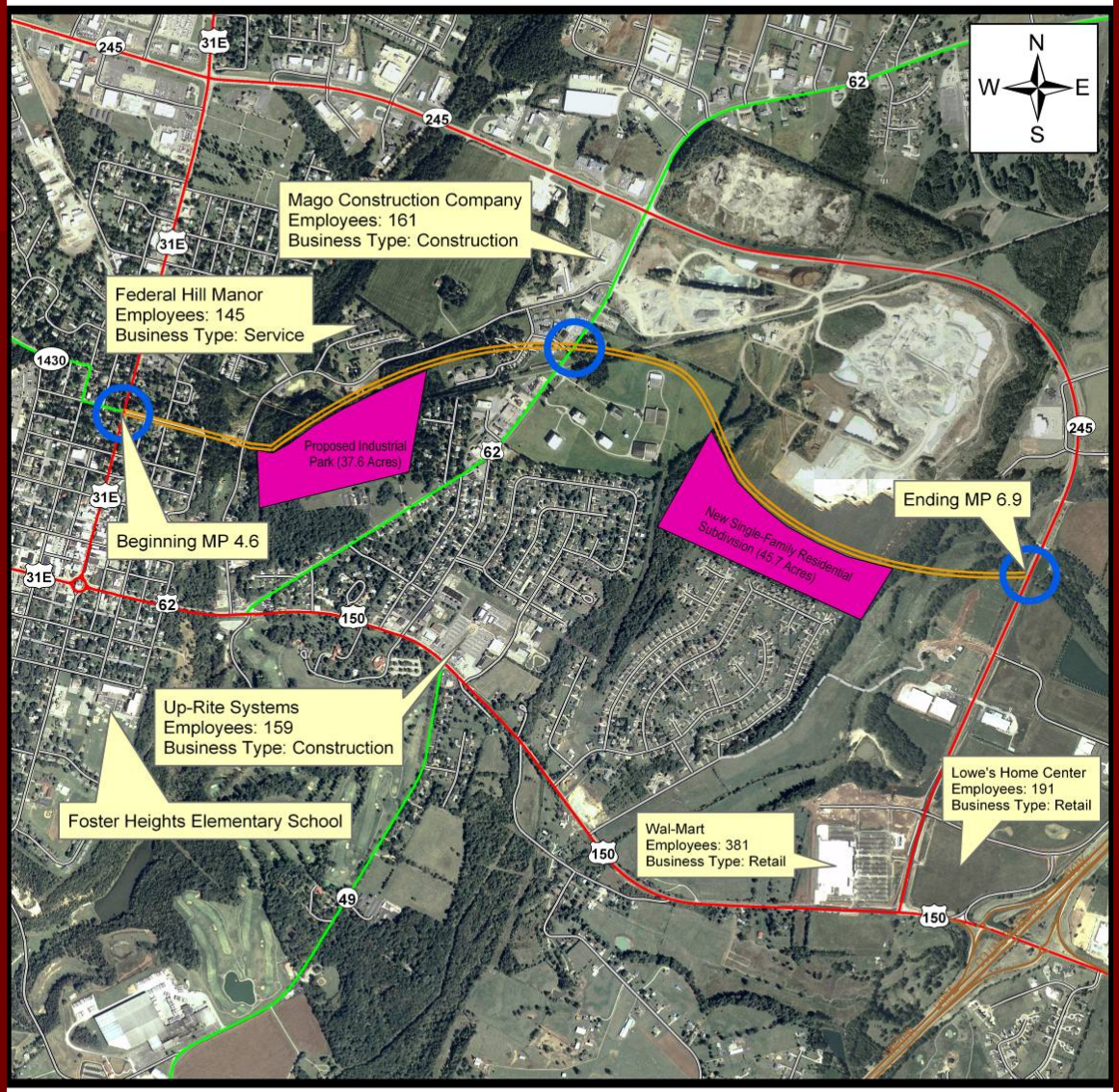
B. Norfolk Southern

C. Amtrak

D. Polar Express

Forecast Request Map Prototype

Forecast Request Map



23. According to ITE Trip Generation a typical Wal-Mart Supercenter (200,000 sq ft) generates _____ weekday trips.

A. 5,000

B. 8,000

C. 11,000

D. 15,000

24. A traffic forecast has a shelf life of_____.

A. 1 years

B. 3 years

C. 5 years

D. A twinkie

25. The Kentucky State Data Center projects an annual growth rate for Kentucky population of _____ for the next 25 years?

A. 0.70%

B. 1.40%

C. 2.40%

D. 3.40%

RESPONSE SYSTEM

This response system is available for use at your public meetings/hearings, project team meetings, training events such as this one, etc.

Please contact Julie Ryan in the Division of Highway Design to discuss/schedule the use of this system.

Julie.ryan@ky.gov 502/564-3280.

26. Peak hour factors are used to _____.

A. Estimate the DHV divided by ADT

B. Estimate an average peak hour

C. Account for a 15 minute spike in an hourly count

D. All of the above

Peak Hour Factor Example

High hourly count of 843 done from 4:00 – 5:00 PM in four 15-minute bins

180, 188, 240, 235

PHF = hourly count / (max bin * 4)

PHF = 843 / (240 * 4) = .88

27. K-factors are used to _____.

A. Estimate the DHV given an ADT

B. Estimate an average peak hour

C. Account for a 15 minute spike in a hourly count

D. Determine how many drinks to consume during happy hour

K-factor Example

Current year DHV estimate is calculated:
843 * 1.21 = 1020

ADT = 10,500

K-factor = 1020 / 10,500 = 9.7%

28. Based on ATR data from 2006, the average K-factor for a road classified Rural Principal Arterial (FC 2) is _____ ?

A. 8.9%

B. 10.7%

C. 11.7%

D. 12.7%

29. Typically the highest volume leg of an intersection should have an ADT of at least _____ before requesting a turn movement forecast?

A. 500

B. 1000

C. 4000

D. 10,000

Turn Movement Request Logic

Highest volume leg of an intersection should be at least 4000 ADT

4000 * .10 (typical k factor) = 400

400 * .6 (high directional split) = 240

Bottom line: Don't Request Turn Movements Unless They Are Needed!

30. A forecast request in phase I design should NOT include which of the following?

A. Environmental impacts (air, noise)

B. Turn movements

C. 20-year ESALs

D. Should not include any of these

31. A forecast request in phase II design can include which of the following?

A. Turn movements for lane storage

B. User cost analysis

C. Refined ESAL forecast for pavement design

D. All of the above

32. The earliest a forecast can be completed if turn movements and special counts are required is?

A. 4-weeks

B. 8-weeks

C. 12-weeks

D. Only the magic 8 ball knows for sure

33. The forecast team (Scott T) should first be contacted about a forecast when the project_____.

A. Is in the conceptual phase

B. Is being advertised to a design consultant

C. Has a design consultant

D. When filling out a PIF